Art. III.—*Notes on certain species of Pterostylis.*

By R. S. ROGERS, M.A., M.D.

(With Plates VII.-IX.).

[Read March 11th, 1915].

It has recently been discovered that botanists in Victoria and South Australia when referring to the orchid *Pterostylis cucullata*, Br., were dealing with two very distinct species of the genus.

In South Australia the name has always been applied to the plant known in Victoria as *Pterostylis Mackibbini*, F.v.M. This determination had the sanction of Tate, and, as I personally remember, of Baron von Mueller also. This is a plant of sturdy habit, radical leaves very large and generally crowded, flowers pubescent with characteristic chocolate markings and usually rather docked sepals.

In Victoria the name is retained for a plant of very different appearance; a slender plant, whose leaves are not particularly large and not crowded at the base, whose flowers are glabrous and green without any brown markings, and whose sepals have long caudâe.

Reference to the National Herbarium in Victoria shows that the Baron held the opinion for very many years that the plant with the brown facings was the true *P. cucullata*, Br. One of his earliest specimens (1848) from St. Vincent's Gulf, South Australia, is marked "*P. cucullata*, var.," and another bearing a much later date (1882) from Mt. Lofty, S.A., is marked "*P. cucullata*" What caused him to change his views in this matter is not clear, unless it was the receipt of very striking specimens, almost a foot high, collected by Mr. Mackibbin in King's Island in 1888.

He published his description of *P. Mackibbini* in the Victorian Naturalist in 1892 (vol. IX., p. 93).

The inadequacy of mere verbal description and the great advantage of illustrations becomes evident on reference to Brown's original description of his species (Prod. 327), and that of Bentham (Fl. Aust., VI., 357). Making the usual allowances for variations, geographical and otherwise, these descriptions serve almost equally well for the South Australian *P. cucullata*, or for the very dissimilar Victorian plant known by the same name.

In order to correct this anomaly an application was made to Kew (England) for typical specimens of the true plant. This has afforded

me the opportunity of examining nine specimens from the Hooker Herbarium. The sheet contained ordinary-sized and dwarfed plants collected by R. C. Gunn (Hooker's collector) at Circular Head, Tasmania, in 1836. They are unquestionably identical with the plant known as *P. cucullata*, Br., in this State and *P. Mackibbini*, F.v.M., in Victoria. Quite recently Dr. Rendle, of the British Museum, supplied me with a photograph (and some notes) of the type specimen in that Herbarium. This confirms the opinion I had previously formed that Brown's species and *P. Mackibbini*, F.v.M., are one and the same. The type comes from Port Dalrymple in Northern Tasmania.

The identity of Brown's species having thus been established, it becomes necessary to give a description and a new name to the plant which has usurped its place in Victoria. With the fate of this plant, is also involved that of another orchid, which has hitherto ranked as one of its varieties, but which, I feel satisfied, is entitled to full specific rank. These will be described as *P. falcata* and *P. alpina* respectively.

It would seem appropriate here to say also a word regarding the plant known as *P. furcata*, Lindl., which has been recorded from Victoria, Tasmania, and South Australia. Its rank has been questioned by F. von Mueller and also by Bentham. Lindley's specimens came from R. C. Gunn's collection (Tasmania); so also did Hooker's (Fl. Tasmania, II., 20). A careful analysis of plants from the same collection has enabled me to supply the accompanying illustration of *P. furcata*, which, together with the incidental remarks on the differential diagnosis between this and the two new species, will serve to support Lindley's view that it is entitled to specific rank.

The illustrations of *P. furcata*, *P. falcata* and *P. alpina* are from herbarium specimens. That of *P. cucullata* is from the living plant.

Pterostylis falcata, sp. nov.

Plant varying in height, usually five to nine inches. Basal leaves present, seldom strictly rosulate; ovate-lanceolate or oblong-lanceolate; sessile, or almost so; 7-9 nerved; rarely exceeding 1½ inches. Stem slender, glabrous; bracts 2 to 3, lanceolate, sheathing, upper one usually some little distance below the ovary and rarely including it. Flower solitary, glabrous, very large (often 2 inches from top of ovary to tip of galea), green; galea erect, very acuminate, sickle-shaped; conjoined sepals cuneate at the base,

including rather a wide sinus of 70-80 deg., produced into long filamentous caudæ almost equal in length to the dorsal sepal. Labellum considerably longer than column, curved forward in its distal fourth so as to protrude through the sinus of conjoined sepals; rather blunt, lanceo-spathulate; traversed throughout its upper surface by a longitudinal ridge very prominent in its anterior half, with a corresponding groove on lower surface of the lamina; upper surface of lamina convex on transverse section; appendage densely penicillate. Column about $\frac{3}{4}$ as long as labellum, wings hatchet-shaped, upper lobe toothed and ciliated, lower lobe obtuse and ciliated. Stigma rather narrow, oblong-lanceolate, point upwards, lower end rounded. The following table shows the chief points of distinction between this plant and *P. cucullata*, Br. :—

	P. falcata	*P. cucullata*
Plant	5-9 inches, slender	2-10 inches, stout, often dwarfed
Basal leaves	Not crowded; not unusually large; rarely exceeding 1½ inches	Generally crowded; often 3-3½ inches; generally wider and blunter than in *P. falcata*.
Bracts	Ovary rarely included in upper bract	Ovary usually included in upper bract; larger, wider and more leaf-like than in *P. falcata*.
Flower	Very large, often 2 ins. (without ovary); glabrous; green and white	Not exceeding 1½ inches (without ovary); pubescent; generally green dorsal sepal with chocolate petals, labellum and lateral sepals.
Galea	Produced into long point	Acute or shortly acuminate.
Conjd. Sepals	Lobes tapering into filamentous antennae; sinus 70°-80°	Lobes tapering into short, sharp points; sinus 35°-40°.
Labellum	Lanceo-spathulate	Oblong-elliptical or narrow-elliptical.
Column	Much shorter than labellum	Quite as long as labellum.
Stigma	Narrow, long, oblong-lanceolate	Broad, short, ovate-lanceolate or elliptical.
Time of flowering	October and November	August and September.

I have seen specimens of this plant from the following Victorian localities :—

Upper Yarra (Chas. Walter).

Orbost (E. E. Pescott).

Dandenong Creek, near Oakleigh (C. French, jun.).

Near Dandenong Ranges (C. French, jun., 1890).

In addition to these localities, Mr. C. French, jun., has recorded the following :—

Sandringham, Cheltenham, Mordialloc, Frankston, Beaconsfield.

It has not been recorded in South Australia, but it is said to occur in Tasmania.

Pterostylis alpina, sp. nov.

Plant glabrous, slender, often very tall, varying in height from 7 to 19 inches. No radical rosette; leaves, leaf-like bracts or bracts generally 5, more rarely 4, of varying size and shape, usually lanceolate, ovate-lanceolate or oblong-lanceolate, clasping at the base, the larger ones sometimes attaining a length of 3 inches, the lowest often represented by a mere scale-like bract, but sometimes leaf-like and large, though not exceeding the one immediately above it in size, the second and third from the base of the stem usually the largest, occasionally nearly all equal. Flower single, erect, glabrous, green, large, 1-1¼ inch (not including the ovary); galea gradually curved forward above the anther, not produced into a fine point, but rather blunt; conjoined sepals narrowly cuneate at the base, including a sinus of about 100 deg., lobes produced into filiform points embracing the galea, and about as long or slightly longer than dorsal sepal. Labellum linear-lanceolate, curved forward at the tip, rather blunt; lamina of nearly equal breadth until the bend, tapering towards the tip, under surface of lamina convex in transverse section, traversed throughout its length by a well-marked mesial raised line, concave below with groove corresponding to raised line; appendage rather densely penicillate. Column rather shorter than labellum, anther oblique; upper lobes of wings toothed; lower lobes rather narrow, blunt, ciliated. Stigma prominent, wide, ovate-lanceolate with the point upwards.

The shape of the flower is very similar to that of *P. curta*, Br., but in no other respects does it resemble that species. The differential diagnosis between *P. alpina*, *P. falcata* and *P. furcata*, Lindl., is shown in the following table :—

	P. alpina	*P. falcata*	*P. furcata*
Radical Leaves	None	Present, sessile or subsessile	Present, petiolate.
Flower	1–1¼ inch (without ovary)	1½–2 inches (without ovary)	1½–1¾ inches (without ovary).
Galea	Rather blunt	Prolonged into long point, sickle-shaped	Curving forward and upwards, markedly acuminate.
Conjd. Sepals	Shortly tailed; sinus about 100°	Long tails sinus 70°–80°	Rather long tails, about equal to dorsal sepal; sinus 70°–80°.
Labellum	Linear–lanceolate, width almost equal until near the bend; longitudinal raised line equally marked throughout; margins of lamina turned downwards; transverse section of lamina convex on it upper surface	Lanceo–spathulate, narrow at base, gradually increasing in width towards tip; longitudinal raised line only prominent in anterior half; relatively much larger than in *alpina*; margins of lamina turned downwards; transverse section of lamina convex on its upper surface	Oblong–linear; rather wider at base than towards the tip; longitudinal raised line prominent throughout; margins upturned; transverse section of lamina showing double cusp on upper surface, thus ⌣⌣.
Stigma	Broad, short, ovate-lanceolate	Narrow, long, oblong-lanceolate	Narrow, oblong-lanceolate.
Time of flowering	September and October	October and November	December and January.

I have examined specimens of this plant from the following Victorian localities:—

Summit of Mt. Dandenong (C. French, jun.).

Watts River, Healesville (C. French, jun., and E. E. Pescott).

Fernshawe (C. French, jun.).

Condah (F. M. Reader).

I believe that we owe the discovery of this orchid to Mr. C. French, jun.

EXPLANATION OF PLATES.

Plate VII.

Pterostylis cucullata, Br.

The plant is shown natural size.

1. Column from the side. × 2.
2. Three-quarter view labellum, showing longitudinal raised line and appendage. × 2.
3. Labellum, showing the upper surface of the lamina. × 2.
4. The stigma. × 2.
5. The conjoined sepals (natural size), showing the narrow sinus.

The drawings are from the living plant.

Plate VIII.

Pterostylis furcata, Lindl.

The plant is shown natural size.

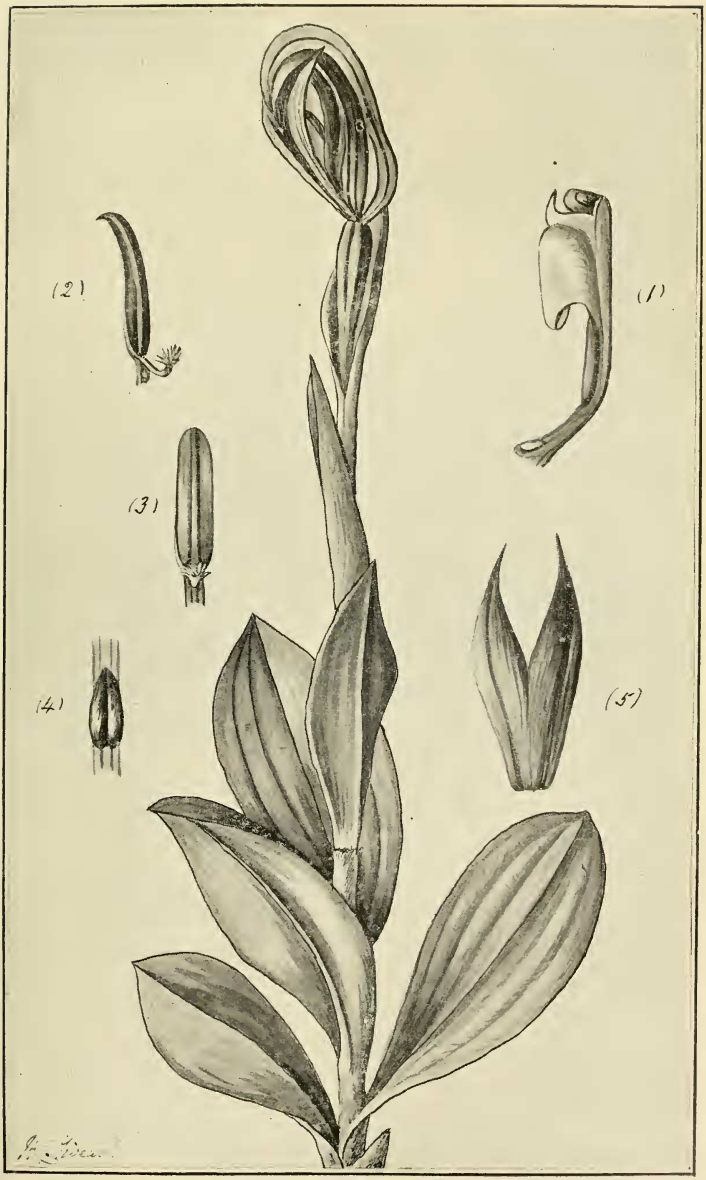
1. Three-quarter view labellum, showing longitudinal raised line and very long basal appendage. × 2.
2. Labellum, showing upper surface of lamina and upturned margins, longitudinal raised line and appendage. × 2.
3. Labellum, showing lower surface of lamina with longitudinal groove corresponding to the raised line on upper surface. × 2.
4. Column from the side. × 2.
5. The narrow stigma. × 1½.

The drawings are from herbarium specimens.

Plate IX.

Pterostylis falcata and *P. alpina*.

The plants are shown natural size.



P. cucullata, R. Br.